Autoxidation of 1-isopropyl-cyclohexene-1....

radical. Hence, the most reactive group in autoxidation is the methylene group near the alkyl radical. The latter increases the mobility of the hydrogen atom in the adjoining methylene group. Autoxidation experiments of 1-isopropyl--cyclohexene-1, at 68°C, during 6 h, carried out in the presence of the initiators cobalt stearate, acetate, formiate, manganese stearate and formiate, or kaolin showed that the cobalt compounds have the greatest activity, but also decompose the hydroperoxide which generates during autoxidation. In the presence of manganese and cobalt formiate the rate of autoxidation is smaller than without addition of initiator. A new hydroperoxide was synthesized by liquid-phase low-temperature autoxidation of 1-isopropylcyclohexene-1 and determined as 1-isopropylcyclohexene--1-hydroperoxide-6. Autoxidation of 1-ethyl-cyclopentene-1 was carried out at 60°C during 5 days without initiator and the following new hydroperoxide separated: 1-ethylcyclopentene-1-hydroperoxide-5. This compound is stable during long-lasting storage. There are 2 tables.

Card 2/2

BELYAYEV, V.F.

Autoxidation of 1-isopropyl-1-cyclohexene and 1-ethyl-1-cyclopentene to hydroperoxides. Zhidkofaz.okis.nepr.org. soed. no.1:97-104 '61. (MIRA 15:2)
(Cyclohexene) (Cyclopentene)
(Hydroperoxides)

KOCHETKOV, N.K.; BELYAYEV, V.F.; DUDINA, G.S.

Ketovinilation of nitrocyclohexane. Zhur.ob.khim. 32 no.6:1785-1789 Je '62. (MIRA 15:6)

1. Belorusskiy gosudarstvennyy universitet.
(Cyclohexane) (Vinylation)

BELYAYEV, V.F.; YATSEVICH, N.M.; SOKOLOV, N.A.

Synthesis of chalcones on the base of β - chlorovinyl ketones. Part 2. Zhur.ob.khim. 32 no.6:2022-2025 Je '62. (MIRA 15:6)

1. Belorusskiy gosudarstvennyy universitet im. V.I.Lenina.
(Chalcone)

BELYAYEV, V.F.

Ketovinylation of nitroparaffins. Zhur. VKHO 9 no. 3:358 '64.
(MIRA 17:9)

1. Belorusskiy gosudarstvennyy universitet imeni Lenina.

BELYAYEV, V.F.

Synthesis of chalcones on the basis of β-chlorovinyl ketones. Zhur. ob. khim. 34 no. 3:861-864 Mr '64. (MIRA 17:6)

1. Belorusskiy gosudarstvennyy universitet imeni V.I.Lenina.

BELYAYEV, V. G.

BELYAYEV, V. G. - "Analysis of a System of Caving-In in Layers and Methods of Perfecting It in the Process of Working Polymetallic and Copper-Pyrite Deposits." Min Higher Education USSR. Moscow Inst of Nonferrous Metals and Gold imeni M. I. Kalinin. Moscow, 1955. (Dissertation for the Degree of Candidate in Technical Sciences.)

So; Knizhnaya Letopis' No 3, 1956

BELYAYEV, V.G., MALIKOV, B.F.

Ways of determining the efficiency of boring machinery with sinker hammers. Izv. vys. ucheb. zav.; tsvet. met. 2 no.2:6-10 '59. (MIRA 12:7)

1.Severokavkazskiy ogrnometallurgicheskiy institut, Kafedra razrabotki poleznykh iskopayemkh.
(Boring machinery)

BELYAYEV, V.G.; MALIKOV, B.F.

Economic evaluation of mining the metal-bearing filling materials in the Sadon Mine. Izv. vys. ucheb. zav.; tsvet. met. 3 no. 6:153-156 '60. (MIRA 14:1)

1. Severokavkazskiy gornometallurgicheskiy institut. Kafedra razrabotki mestorozhdeniy poleznykh iskopayemykh.
(Sadon region--Mining enegineering--Costs)
(Ore dressing--Costs)

BELYAYEV, V.G.; VEDERNIKOV, I.I.; GONCHAROV, V.N.; PATEYEV, A.Kh.; RUMYANTSEVA, M.B., red.; FORMALINA, Ye.A., tekhn. red.

[Using high-frequency current for defrosting frozen sprat briquets] Defrostatsiia briketov morozhenoi kil'ki tokom promyshlennoi chastoty. Moskva, Izd-vo zhurnala "Rybnoe khoziaistvo" VNIRO, 1962. 21 p. (MIRA 17:3)

1. Sotrudniki Kaspiyskogo nauchno-issledovatel'skogo instituta morskogo rybnogo khozyaystva i okeanografii, Astrakhan' (for Belyayev, Vedernikov).

BELYAYEV, V.G.; BORISENKO, G.A.

Profiling the ball-return channel for ball transmissions.
Stan. i instr. 35 no.6:13-16 Je '64 (MIRA 17:8)

BELYAYEV, V.G.

Ectoparasites of Magadan Province. Dokl. Irk. gos. nauch.-issl. protivochum. inst. no.5:180-185 '63 (MIRA 18:1)

BELYAYEV, V.G.

Case of neurodermatitis complicated by a mass attack of chicken mites. Med. paraz. i paraz. bol. 34 no.1:116-117 Ja-F '65.
(MIRA 18:8)

1. Primorskaya krayevaya protivochumnaya stantsiya, Ussuriysk.

KORNIYENKO, A.M.; SHTEL'MAKHOV, M.S.; GEYLER, Z.Sh.; BERESNEV, V.A.; KOTLIK, S.B.; GORFINSKIY, Kh.M.; ZEL'DIN, Yu.R.; KURGIN, Yu.M.; BELYAYEV, V.G.; ZAK, P.S.; ZAYTSEV, A.A.; LI, A.M.; SKVORTSOV, L.N.; LUTTS, R.R.; KHVINGIYA, M.V.; NINOSHVILI, B.I.; SEMENCHENKO, D.I.; SUKHANOV, V.B.

Soviet inventions in mechanical engineering. Vest.mashinostr. 45 no.11:87-88 N '65. (MIRA 18:12)

BELYAYEV, Valeriy Ivanovich; [illegible]'KAYA, L.L., red.

[Lagrangian method in the kinetics of cloud processes] Metod Lagranzha v kinetike oblachnykh protsessov. Leningrad, Gidrometeoizdat, 1964. 117 p. (MIRA 17:7)

BELYAYEV, V.I.

Using aluminum in construction. Nov. tekh. i pered. op. v stroi. 20 no. 7:11-16 Jl '58. (MIRA 11:8)

1. Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR.
(Aluminum, Structural)

BELYAYEV, V.I., kand.tekhn.nauk.

Sinking screw piles. Avt.dor. 20 no.7:24-25 Jl '57. (MIRA 10:10)
(Piling (Civil engineering))

BELYAYEV, Valentin Ivanovich; MIROSHNICHENKO, V.D., red. izd-va; SHKLYAR, S.Ya., tekhn. red.; LOMILINA, L.N., tekhn. red.

[Practices in planning and analyzing coal production costs] Praktika planirovaniia i analiza sebestoimosti dobychi uglia. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1961. 207 p. (MIRA 14:6)

(Coal mines and mining—Costs)

BELYAYEV, V.I., kand.tekhn.nauk

Effect of underloading and successive overloadings on the fatigue strength of steels. Mash.Bel. no.6:94-110 '59. (MIRa 13:6)
(Steel--Testing)

PHASE I BOOK EXPLOITATION SOV/6107

Belyayev, Vasiliy Ivanovich

Issledovaniye protsessa ustalosti metallov (Investigation of the Metal Fatigue Process). Minsk, Izd-vo MVSS i PO BSSR, 1962. 109 p. Errata slip inserted. 2700 copies printed.

Ed.: V. T. Nekhay; Tech. Ed.: A. P. Dubovik.

PURPOSE: The book may be useful to scientists, machine designers, and students.

COVERAGE: The book deals with metal fatigue and discusses the effect of various test conditions on the endurance limit and service life of carbon and alloy steels and nonferrous metals. The effect of limit load type, the strain rate, and the size factor (scale effect) is also analyzed. The assistance of Professor T. A. Lebedev is acknowledged. There are 55 references: 52 Soviet, 2 English, and 1 French.

Card 1/1

ROMAN, O. V.; BELYAYEV, V. I.; KUTSER, M. Ya.

"The use of byproduct steel powder from ball bearing production in powder metallurgy."

report submitted for Intl Conf on Powder Metallurgy, New York, 14-17 June 65.

Belorussian Polytechnical Inst, Minsk.

SOPKO, P.F.; BELYAYEV, V.I.; ZHILENKOV, G.V.

Some data on magmatic rocks of basic and ultrabasic composition in the southern part of Voronezh Province and their metallogenic significance. Dokl. AN SSSR 136 no.2:437-440 '61. (MIRA 14:1)

1. Voronezhskaya kompleksnaya geologorazvedochnaya ekspeditsiya i Voronezhskiy gosudarstvennyy universitet. Predstavleno akademikom D.S. Korzhinskim.

(Voronezh Province—Rocks, Igneous)

3(7)

AUTHORS: Kolesnikov, A.G., and Belyayev, V.I. SOV/155-58-2-42/47

TITLE: On the Crystallization of a Super cooled Cloud on Interspersed Artificial Sublimation Centers (O kristallizatsii pereokhlazhdennogo oblaka na iskusstvennykh yadrakh sublimatsii, vvedennykh v nego putem zaseva)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki, 1958, Nr 2, pp 200-203 (USSR)

ABSTRACT: The authors consider the isothermic crystallization of a cloud consisting of water vapor and water drops cooled to ca. -10°C, the microstructure of which is independent of the local coordinates, and in which to a given moment a large set of sublimation kernels is interspersed. The authors establish a system consisting of six equations out of which the number of appearing crystals, the vapor concentration, and other characteristics of the sublimation process can be obtained as functions of the time.
There is 1 figure, and 3 references, 2 of which are Soviet, and 1 American.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova (Moscow State University imeni M.V.Lomonosov)

~~3(7)~~ 3,5000

AUTHORS: Kolesnikov, A.G. Belyayev, V.I. SOV/155-58-4-32/34

TITLE: On the Calculation of the Rate of Crystalline Growth of an Undercooled Cloud Under Influence of Hard Carbonic Acid Gas (K raschetu skorosti kristallizatsii pereokhlazhdennogo oblaka pri vozdeystvii na nego tverdoy uglekislotoy)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki, 1958, Nr 4, pp 199 - 206 (USSR)

ABSTRACT: The authors propose to calculate the process of artificial crystallization of a cloud under an influence of CO_2 on the basis of the following simple scheme : The process is understood as a diffusion of ice particles arising under the influence of hard carbon dioxide, and as the distillation of water from the drops on the ice crystals. The calculation according to this scheme is carried out under the simplest assumptions (horizontal, thin, infinite cloud ; linear diffusion of CO_2 etc). It is proposed to verify experimentally the obtained formulas in order to obtain indications for those facts which are not taken into account in the

Card 1/2

On the Calculation of the Rate of Crystalline Growth of an Undercooled Cloud Under Influence of Hard Carbonic Acid Gas SOV/155-58-4-32/34

scheme. A numerical example is given.
There are 2 figures, and 3 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova (Moscow State University imeni M.V. Lomonosov)

SUBMITTED: April 5, 1958

Card 2/2

3(7)

AUTHORS: Kolesnikov, A.G., Belyayev, V.I. SOV/155-58-5-19/37

TITLE: On the Calculation of the Rate of Crystalline Growth of a Supercooled Cloud Under Influence of Ice-Forming Particles

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki,1958,Nr 5,pp 102-107 (USSR)

ABSTRACT: The paper consists of an introduction (section 1) in which the author refers especially to the papers of V.Ya.Nikandrov, G.M. Bashkirova, P.N. Krasikov and others, and of 2 further sections. In section 2 he considers the onedimensional problem analogously to [Ref 11] : In the starting moment the ice-forming particles are in a vertical plane and then diffuse in horizontal direction, whereby simultaneously crystals are formed on them. For the steam influx to the crystals the author obtains

$$q_2 = 4\pi D(u-u_2) \int_0^{\tau} d\tau_2 \int_{-\infty}^{\infty} n_2 \bar{r}_2 dx_2$$

by similar considerations as in [Ref 11], where

Card 1/ 3

On the Calculation of the Rate of Crystalline Growth SOV/155-58-5-19/37
of a Supercooled Cloud Under Influence of Ice-Forming Particles

$$n_2 = \frac{\varphi_2(x_2, \tau_2)}{2\sqrt{\pi K(\tau - \tau_2)}} e^{-\frac{(x-x_2)^2}{4K(\tau-\tau_2)}}$$

$$\varphi_2(x_2, \tau_2) = \int_0^{r_3^{max}} W\left\{u(x_2, \tau_2),\ r_3\right\} \nu(r_3, x_2, \tau_2) dr_3$$

Here u denotes the steam concentration, $\bar{r}_2$ medium size of the crystals in the point x in the moment τ, K the coefficient of turbulent diffusion, D the coefficient of molecular steam diffusion, x_2 the initial coordinate of the crystal originated in the moment τ_2, W the probability of the formation of ice crystals on the particles, ν the density distribution function,

Card 2/3

On the Calculation of the Rate of Crystalline Growth SOV/155-58-5-19/37
of a Supercooled Cloud Under Influence of Ice-Forming Particles

r_3 magnitude of the particle. In section 3 the author tries to extend the obtained results to the two-dimensional case occurring in natural situations.
There are 13 references, 8 of which are Soviet, 2 English, 2 Japanese, and 1 American.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova (Moscow State University imeni M.V. Lomonosov)

SUBMITTED: May 8, 1958

Card 3/3

AUTHORS: Kolesnikov, A. G. and Belyayev, V. I.

TITLE: The Crystallization of Super-cooled Water Clouds by Freezing of Drops (O kristallizatsii pereokhlazhdennogo vodnogo oblaka putem zamerzaniya kapel')

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1958, Nr 5, pp 636-642 (USSR)

ABSTRACT: Ref.1 considers the process of crystallization of super-cooled water vapour when crystals arise on sublimation nuclei. This would occur in seeding experiments, but in natural processes it is more likely to occur by freezing of the water droplets. It is assumed that the cloud is homogeneous (i.e., the functions used do not depend on coordinate) so that calculations can be made per unit volume. At the start the cloud consists of water vapour and drops in dynamic equilibrium. It is assumed that at a certain time, due to a change in temperature, etc., metastability occurs. This moment is taken as the onset of crystallization. Since the saturation vapour pressure is lower over ice than water, the ice crystals grow at the expense of the water vapour. This loss of water vapour causes the unfrozen drops to evaporate and the process continues till the whole cloud has frozen. The freezing process occurs almost instantly that a seed crystal appears. The probability of

The Crystallization of Super-cooled Water Clouds by Freezing of Drops.

appearance seed crystal in unit volume of fluid is a function of temperature (Ref.2). Taking the process to be isothermal, the probability of freezing is proportional to the volume. Thus, if n' drops freeze/unit time from n drops (the same size) then: $n' = \beta v n$ (1) where β = const, v is the volume of a drop. Since the initial dimensions of cloud droplets are small and crystals at this stage do not grow to a large size, the evaporation of drops and the growth of crystals can be considered to be controlled by molecular diffusion of water vapour. To describe this change Maxwell's equation is used for drops (Eq.2) and crystals (Eq.3). (Where r_1 is the radius of a drop; u_1 is the vapour concentration corresponding to equilibrium of vapour and drops; r_2 and u_2 are the same quantities for a crystal; D is the molecular diffusion coefficient for the vapour; ρ_1 and ρ_2 are the densities of water and ice; u is the vapour concentration in the absence of drops and crystals) u_1 and

The Crystallization of Super-cooled Water Clouds by Freezing of Drops.

u_2 are considered constant. Since at the initial moment, the drops are in equilibrium with the vapour, therefore $u(0) = u_1$. If the radius of the drops at this moment is R_1, then its radius at any later moment will be given by Eq.(2) with the boundary conditions Eq.(4). This gives Eq.(5). This indicates that drops can be divided up according to their initial radius - drops between R_1 and $R_1 + dR_1$ will remain similar all their lives and will disappear at the same time τ' . Thus the behaviour of each group can be calculated separately and the final result got by summing. Let the initial distribution be described by the function $\varphi(R_1)$. Then the number of drops at the initial moment in such a group is: $\varphi(R_1)dR_1$ (6)

Extend the function to $f_1(\tau, R_1)$ so that the number of drops in the range $(R_1, R_1 + dR_1)$ at any moment τ is equal to: $f_1(\tau, R_1)dR_1$. (7)

The Crystallization of Super-cooled Water Clouds by Freezing of Drops.

From Eq.(1) we have the number of drops in unit time, from this group, which turn into crystals (Eq.8). Using Eq.(6), it is found that $f_1(\tau R_1)$ can be expressed by an integral equation, which is most conveniently expressed in the form Eq.(9). At a certain moment τ' the considered group disappear as a result of evaporation. At this moment R_1 is given by Eq.(10) from Eq.(5). Eq.(10) permits the initial radius to be expressed in terms of the moment of disappearance of the drop ($R_1 = Z(\tau')$). To distinguish one group of similar drops from another group, the initial radius of the drop is used. Crystals must be defined by two parameters: R_1 defining the drops from which they arise and τ'' the moment of freezing of the drop. The description of the crystallization process in terms of these two variables is analogous to the problems of hydrodynamics in Lagrangian variables. A function $f_2(\tau'', R_1)$ is introduced so that the number of crystals formed at time τ'' from drops with

The Crystallization of Super-cooled Water Clouds by Freezing of Drops.

initial radii in the range R_1 to $R_1 + dR_1$ is equal to $f_2(\tau'', R_1)dR_1$. The number of crystals formed per unit time from this group is given by Eq.(11). Considering next the equation for the change in concentration of vapour $u(\tau)$ during crystallization, this change/unit time will be equal to the difference between the total vapour flow from the evaporating drops and total vapour flow to the growing crystals, Eq.(12). (P_1 is the vapour flow from the drops; P_2 is the vapour flow to the crystals). P_1 is first found (Eq.13) and then P_2. This latter can be obtained by integrating Eq.(3) with the boundary conditions (Eq.14), giving Eq.(15) which represents the radius of the crystal as a function of $r_2(\tau, \tau'', R_1)$. Eq.(16) gives the flow to a crystal arising at the moment τ''. At τ'' only those drops can freeze for which $R_1 > Z(\tau')$ $[\tau' = \tau'']$. Therefore Eq.(16) is integrated for R_1 between the limits $Z(\tau'')$ and R_1^{max}. On integrating again for τ'' between the limits 0 and τ,

The Crystallization of Super-cooled Water Clouds by Freezing of Drops.

Eq.(17) for P_2 is obtained. Eq.(12) can be written in the form Eq.(18), using Eqs.(13) and (17). Thus five equations (Eqs. 5, 15, 9, 11 and 18) have been obtained for five unknowns r_1, r_2, n_1, n_2 and u, which can therefore be found and hence the crystallization process studied. The initial boundary conditions for the system are that: $u = u_1$, $f_2 = 0$ when $\tau = 0$; $\tau'' = 0$. Eliminating r_1, r_2, f_1 and f_2 from Eq.(18) by use of the other equations, an equation for u is obtained which can be written in the form Eq.(19) (where Φ is a function of $u(\tau)$ depending on the value of u in the range $[0, \bar{\tau}]$), Eq.(19) can be solved by a numerical method which is discussed below. Taking a small value of $\tau = \tau_1$ u is calculated linearly in the region $[0, \tau_1]$ and $du/d\tau$ for the point τ_1 is calculated from Eq.(19). The process is then repeated until the final value of u is found. Once u has been found, the other unknowns can be easily

The Crystallization of Super-cooled Water Clouds by Freezing of Drops.

determined. Assuming these solutions are Eqs.(20),(21), (22) and (23), then, firstly, it is possible to determine the overall number of drops $n_1(\tau)$ and crystals $n_2(\tau)$ in the cloud at any time and, secondly, to determine the density of distribution by dimensions $\nu_1(\tau, r_1)$ and $\nu_2(\tau, r_2)$ at any time - these functions can be found from experiments comparatively easily. The functions $n_1(\tau)$ and $n_2(\tau)$ are obtained from the definition of the functions f_1 and f_2 . $\nu_1(\tau, r_1)$ and $\nu_2(\tau, r_2)$ are obtained by considering a group of drops the initial dimensions of which lie in the range $[r_1, r_1 + dr_1]$ where dr_1 is given by Eq.(24). The number of drops in this group at the moment τ is $g(\tau, R_1)dR_1$, which, using Eq.(24) becomes: $$g(\tau, R_1)\frac{dr_1}{\frac{\partial p(\tau, R_1)}{\partial R_1}}$$

Card 7/9 Eq.(25) gives the number of drops at time τ with dimensions

The Crystallization of Super-cooled Water Clouds by Freezing of Drops.

in the range $[r_1, r_1 + dr_1]$. From Eq.(22) it is possible to find $R_1 = S_1(r_1, \tau)$ as follows from Eq.(5). Substituting in Eq.(25) gives $\nu_1\{\tau, S_1(r_1, \tau)\} = \nu_1(r_1, \tau)$. At time $\tau'' < \tau$, drops with initial dimensions in the range $[R_1, R_1 + dR_1]$ freeze. If the crystals which arise from these at time τ are to have dimensions in the range $[r_2, r_2 + dr_2]$, the conditions Eq.(26) and Eq.(27) on R_1 and dR_1 must be imposed (where S_2 is determined from Eq.(23)). The number of crystals (arising at a time $\tau'' < \tau$ in an interval $d\tau$) with dimensions at τ in the range $[r_2, r_2 + dr_2]$ is equal to Eq.(28) (where R_1 and dR_1 are defined by Eqs.26 and 27). The differential with respect to τ'' in this expression, after substituting Eq.(26) for R_1 ,

The Crystallization of Super-cooled Water Clouds by Freezing of Drops.

in the case R_1 = const, gives Eq.(29). To find the number of crystals with dimensions at time τ in the range $[r_2, r_2 + dr_2]$ Eq.(29) has to be integrated for all τ'' from 0 to τ, giving an expression for $\nu_2(r_2, \tau)$. With the help of the functions (20) to (23), the amount of water contained in the cloud drops and the amount of ice at a given time $[M_1(\tau)$ and $M_2(\tau)]$ can be easily formed. All numerical constants in the Eqs.(5), (15), (9), (11) and (18) are known except β, for which reliable experimental data is not available. There are no figures and 2 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy Universitet im. M. V. Lomonosova (Moscow State University im. M. V. Lomonosov)

SUBMITTED: January 31, 1957.

1. Raindrops--Temperature 2. Water vapor--Crystallization

BELYAYEV, V.I.

Calculation of nonisothermal crystallization of clouds. Izv. AN SSSR. Ser. geofiz. no.10:1580-1584 O '61. (MIRA 14:9)

1. AN SSSR, Institut prikladnoy geofiziki.
(Cloud physics)

BELYAYEV, V.I.

Equations of a system of water droplets suspended in the air. Izv. AN SSSR. Ser. geofiz. no.9:1408-1417 S '61. (MIRA 14:9)

1. Akademiya nauk SSSR, Institut prikladnoy geofiziki.
(Cloud physics)

BELYAYEV, V.I.

Size distribution of droplets in the cloud during its condensation stage of development. Izv. AN SSSR. Ser. geofiz. no.8:1209-1213 Ag '61. (MIRA 14:7)

1. Akademiya nauk SSSR Institut prikladnoy geofiziki.
(Cloud physics)

3.1703

S/169/62/000/011/022/077
D228/D307

AUTHORS: Kolesnikov, A.G. and Belyayev, V.I.

TITLE: Methods of estimating the crystallization of supercooled clouds under artificial influence

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 11, 1962, 30, abstract 11B190 (In collection: Issled. oblakov, osadkov i grozovogo elektrichestva, M., AN SSSR, 1961, 10-15)

TEXT: The results of work (RZhGeofiz, no. 1, 1960, 861) are reviewed, and it is shown that they can be extended to the case of a cloud which is polydispersed at the initial moment of time. [Abstracter's note: Complete translation]

Card 1/1

BELYAYEV, V.I.

Determining the critical size of crystallization nuclei. Izv. AN SSSR. Ser. geofiz. no.8:1279-1281 Ag '60. (MIRA 13:8)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Atomspheric nucleation)

BELYAYEV, V.I.

Equations of crystallization of supercooled clouds with an account of coagulation. Izv.AN SSSR.Ser.geofiz. no.7: 1059-1068 Jl '60. (MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Cloud physics)

S/020/60/133/04/22/031
B019/B060

AUTHORS: Kolesnikov, A. G., Belyayev, V. I.

TITLE: Calculation of the Shift of the Crystallization Front in an Undercooled Cloud Under the Action of CO_2

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 4, pp. 835-837

TEXT: It is assumed in first approximation that the propagation of crystallization in an undercooled cloud takes place like a diffusion of ice nuclei due to the action of CO_2. Proceeding from this assumption, the authors had in a previous paper (Ref. 1) obtained the system (1) of differential equations for the calculation of this process. The authors discuss the density of the vapor sources (formulas (2) and (3)) and the radius of the droplets (formula (4)) and next, they adapt system (1) to results of observation. Crystallization in a cloud was found to take place in a narrow zone which divides the cloud into a crystallizing and a noncrystallizing part. An important part in this zone is played by sublimation, while the diffusion of vapor and of the droplets plays but

an unimportant part. For this case (1) is replaced by (5) which allows the determination of the vapor concentration, the droplet size, and the average size of the ice crystals. Numerical calculations of the vapor concentration in a cloud, which is important for determining the concentration front of a cloud subjected to the action of solid CO_2, revealed that the large drops and crystals play a decisive role for the vapor equilibrium, since the dependence of the vapor concentration on the radius can be neglected here. With the quick-operation computer "Strela" the authors made numerical calculations of the shift of the crystallization front as a function of the initial concentration of ice nuclei and of the turbulence coefficients, and, as a solution, the crystallization front was obtained as a function of time (Fig. 2). It is finally pointed out that no precise knowledge of the concentration of ice nuclei is so far available; the same holds for turbulence coefficients. By comparing the results obtained here with results obtained from the observation of the action of solid CO_2 on undercooled clouds, it is possible to make an estimation of the abovementioned, little known quantities. There are 2 figures, 1 table, and 2 Soviet references.

Card 2/3

Calculation of the Shift of the Crystallization Front in an Undercooled Cloud Under the Action of CO_2

S/020/60/133/04/22/031
B019/B060

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: February 15, 1960, by V. V. Shuleykin, Academician

SUBMITTED: December 14, 1959

Card 3/3

32702
S/049/61/000/012/006/009
D207/D303

3,5910

AUTHORS: Belyayev, V.I., Gayvoronskiy, I.I., Kolesnikov, A.G. and Krasnovskaya, L.I.

TITLE: Propagation of crystallization in supercooled clouds on introduction of solid carbon dioxide

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya geofizicheskaya, no. 12, 1961, 1844 - 1851

TEXT: The paper reports experimental work on dispersal of clouds by seeding with CO_2, carried out by I.I. Gayvoronskiy and L.I. Krasnovskaya; the experimental results are compared with theoretical relationships derived by the other two authors (A.G. Kolesnikov and V.I. Belyayev). Experiments were carried out during autumn and winter of 1956 - 7 at the Tsentral'naya aerologicheskaya observatoriya (Central Aerological observatory) using aircraft of the ЛИ -2 (LI-2) type. The aircraft flew in a straight line over clouds of St and Sc type which were not thicker than 500 m and whose temperatures at the top

Card 1/ 4

did not exceed -4°C. The clouds were seeded with solid CO_2 granules of 0.5 - 1 cm diameter. The atmospheric pressure, relative humidity and air temperature were measured during seeding with an aircraft meteorological instrument CM-43 (SM-43). Samples of the clouds were taken and examined microscopically. The amount of condensed water in the clouds was measured by Zaytsev's method [Abstractor's note: No details given]. The wind velocity was determined using a technique developed at the Gosudarstvennyy nauchno-issledovatel'skiy institut Grazhdanskogo Vozdushnogo Flota (State Scientific Research Institute of the Civil Air Fleet). After seeding, the aircraft flew above the clouds measuring the expansion of the cloudless zone produced by CO_2; this was continued until the cloudless zone filled again with clouds. Each experiment in air was preceded by soundings of the clouds from the ground. The results are presented in the form of the dependence (gradual increase) of the cloudless zone width, D, on time, T, which represents propagation of a crystallization front in a cloud. The experimental curves were compared with the theory developed in 1958 by

Propagation of crystallization ...

A.G. Kolesnikov and V.I. Belyayev (Ref.4: Nauchn. dokl. vyssh. shkoly, fiz. mat. nauk, no. 4, 1958). The theory assumes that the process of propagation of a crystallization front in a supercooled cloud can be reduced to turbulent diffusion of ice nuclei produced by solid CO_2 and distillation of water from drops to crystals. For simplicity a cloud is assumed to be bounded by planes of infinite extent in horizontal directions. The cloud is also assumed to consist initially of droplets and particles all of the same size; appearance of particles of various sizes after seeding is allowed for. The theoretical and experimental curves showing $D(\tau)$ agreed satisfactorily, even quantitatively. The agreement indicated that crystallization fronts are very narrow and that their propagation is governed primarily by the turbulent diffusion coefficient K (dimensions $cm^2\ sec^{-2}$) and, to a lesser extent, by ε which is the density of ice nuclei (dimensions cm^{-2}) induced by CO_2. There are 4 figures and 4 Soviet-bloc references.

ASSOCIATION: Institut prikladnoy geofiziki, Akademiya nauk SSSR (Institute of Applied Geophysics, Academy of Sciences, USSR)

32702
S/049/61/000/012/006/009
D207/D303

Propagation of crystallization ...

(Belyayev, V.I.); Tsentral'naya aerologicheskaya observatoriya (Central Aerological Observatory) (Gayvoronskiy, I.I. and Krasnovskaya, L.I.); Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova (Moscow State University imeni M.V. Lomonosov) (Kolesnikov, A.G.)

SUBMITTED: February 4, 1961

Card 4/4

BELYAYEV, V.I.; PAVLOVA, I.S.

Possibility of weather control through artificial dissipation of clouds. Izv. AN SSSR. Ser. geofiz. no.1:129-133 Ja '62. (MIRA 15:2)

1. AN SSSR, Institut prikladnoy geofiziki.
(Weather control)

BELYAYEV, V.I.; PAVLOVA, I.S.; RYABOV, V.M.

Methodology of dispersing clouds over large areas. Izv. AN SSSR. Ser. geofiz. no.9:1410-1416 S '63. (MIRA 16:10)

L 17533-63 EWT(1)/BDS AFFTC/ASD/ESD-3/APGC Pi-4 RB

ACCESSION NR: AP3004423 S/0020/63/151/004/0841/0844

AUTHOR: Belyayev, V. I. 62

TITLE: Theory of crystallization propagation in supercooled clouds

SOURCE: AN SSSR. Doklady*, v. 151, no. 4, 1963, 841-844

TOPIC TAGS: geophysics, supercooled cloud

ABSTRACT: Author supplements the existing theories of crystallization in supercooled clouds by considering the precipitation of ice crystals from the cloud. It has been shown in several references that the crystallization occurs in a very narrow frontal zone separating the liquid and crystalline phases. In this work, a system of equations is derived describing the balance of vapor in the frontal zone. From a qualitative analysis of these equations, a lower limit for the concentration of ice nuclei is obtained above which the propagation of crystallization in the supercooled cloud is possible. Orig. art. has: 2 figures and 15 equations.

ASSOCIATION: Morskoy gidrofizicheskiy institut Akademii nauk USSR (Naval Hydrophysics Institute, Academy of Sciences, UkrSSR).

Card 1/2

L 31815-65 EWT(1)/FCC GW
ACCESSION NR AM4044432 BOOK EXPLOITATION S/

9
BH

Belyayev, Valeriy Ivanovich

The Lagrange method in the kinetics of cloud processes (Metod Lagranzha v kinetike oblachnykh protsessov), Leningrad, Gidrometeoizdat, 1964, 117 p. illus., biblio. 600 copies printed.

TOPIC TAGS: Lagrange variable, cloud, precipitation, meteorology, water drop

PURPOSE AND COVERAGE: This monograph presents a mathematical description of water drops based on the use of Lagrange variables. It shows the application of the method to deriving general equations of the kinetics of elementary cloud processes and the solution of a number of problems in the physics of clouds. This method made it possible to derive equations for many cloud processes which had not been studied before and to obtain a quantitative conception of them. These processes play an important role in the theory of precipitation formation. The book can be used by specialists working on problems of cloud physics and by other specialists, for example, physico-chemists studying the kinetics of colloidal systems and hydromechanics specialists studying the behavior of gaseous and liquid mixtures which have phase transitions.

Card 1/2

L 31015-65
ACCESSION NR AM4044432

TABLE OF CONTENTS [abridged]:

SUBMITTED: 18Mar64 SUB CODE: ES, MA, ME

NO REF SOV: 061 OTHER: 034

Card 2/2

ACC NR: AP6022221 SOURCE CODE: UR/0362/66/002/006/0630/0635

AUTHOR: Belyayev, V. I.; Vyal'tsev, V. V.; Pavlova, I. S.

ORG: Marine Hydrophysics Institute (Morskoy gidrofizicheskiy institut)

TITLE: An experiment of weather modification by seeding of fog with dry ice /2

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 2, no. 6, 1966, 630-635

TOPIC TAGS: weather modification, fog, atmospheric temperature gradient

ABSTRACT: The weather modification by fog seeding from an aeroplane on Jan 12 1961 in the district of Nal'chik is described and analyzed. The city, district, and the northern Caucasus were surrounded by uniform meteorologic conditions and the fog was defined as a type lasting usually to the afternoon and sometimes for several days. The wind direction and velocity were defined by circular seeding. Clearing over city and airport were achieved by seeding in and against the wind direction, and the resulting clearing was supported by additional approaches from the wind-exposed direction. Temperatures at ground level increased during the experiment from -4.6 C at 8.35 a.m. to 3 C at 1 p.m. The contribution of the seeding experiment to the atmospheric radiation balance and temperature increase was analyzed. The heat ΔQ, entering the lower atmosphere due to the clearing, was estimated as $5.3 \cdot 10^{13}$ cal.

UDC: 551.509.615

Card 1/2

ACC NR: AP6022221

The analysis indicated that fog seeding may cause a considerable increase in temperatures near ground level in southern regions of the Soviet Union. Orig. art. has: 4 formulas, 1 table, and 3 figures.

SUB CODE: 04/ SUBM DATE: 14Jul65/ ORIG REF: 005

Card 2/2

MATVEYEV, G.A., doktor tekhn.nauk prof.; BELYAYEV, V.I., inzh.

Choice of optimum gas velocities in tubular air preheaters of boiler systems. Izv.vys.ucheb.zav.; energ. 3 no.10:88-92 O '60.
(MIRA 13:11)

1. Energeticheskiy institut imeni G.M.Krzhizhanovskogo AN SSSR.
(Boilers) (Air preheaters)

STYRIKOVICH, M.A.; MATVEYEV, G.A., doktor tekhn.nauk; BELYAYEV, V.I., inzh.

Selecting the optimal temperature for flue gases of power boilers. Teploenergetika 7 no.7:27-32 Jl '60. (MIRA 13:7)

1. Energeticheskiy institut AN SSSR. 2. Chlen-korrespondent AN SSSR (for Styrikovich).
(Boilers)

MATVEYEV, G.A., doktor tekhn.nauk; BELYAYEV, V.I., inzh.

Choice of optimum gas velocities in feed-water economizers.
Elek. sta. 31 no.9:16-19 S '60. (MIRA 14:10)
(Boilers)

LYAKHOVICH, L.S.; BELYAYEV, V.I.; ROMAN, O.V., kand.tekhn.nauk, dots., retsenzent; AKALOVICH, N.M., red.; KONCHITS, Ye.P., tekhn. red.

[Nitriding steel by heating with high frequency currents] Azotirovanie stali nagrevom tokami vysokoi chastoty. Minsk, Izd-vo M-va vysshego, srednego spetsial'nogo i professional'nogo obrazovaniia BSSR, 1961. 44 p. (MIRA 15:7)
(Case hardening) (Induction heating)

BELYAYEV, V.I., inzh.; KAMENSKIY, S.K., inzh.

Basic trends in the development of boiler design and construction in the U.S.A. from 1950 to 1960, and its immediate prospects. Energomashinostroenie 7 no.12:43-45 D '61. (MIRA 14:12)
(United States--Boilers--Design and construction)

KAMENSKIY, S.K., inzh.; BELYAYEV, V.I., inzh.

Basic trends in the development of turbomachine construction in the U.S.A. during the period from 1950-1960, and some of its prospects. Teploenergetika 8 no.12:81-82 D '61. (MIRA 14:12)
(United States--Turbomachines--Design and construction)

BELYAYEV, V.I., inzh.

Selecting the optimum gas flow rate in regenerative air heaters.
Teploenergetika 9 no.2:30-31 F '62. (MIRA 15:2)

1. Energeticheskiy institut AN SSSR.
(Boilers--Desing and construction)

MATVEYEV, G.A., doktor tekh. nauk; BELYAYEV, V.I., inzh.

Technical and economic basis for choosing gas velocities in transition zones and steam superheaters of boiler systems. Teploenergetika 10 no.7:12-16 Jl '63. (MIRA 16:7)

1. Energeticheskiy institut im. Krzhizhanovskogo.
(Boilers)

MATVEYEV, G.A., doktor tekhn. nauk; BELYAYEV, V.I., inzh.

Effect of economic and operational factors on the optimum characteristics of the convective section of boiler units. Teploenergetika 11 no.6:78-81 Je '64. (MIRA 18:7)

1. Energeticheskiy institut AN SSSR.

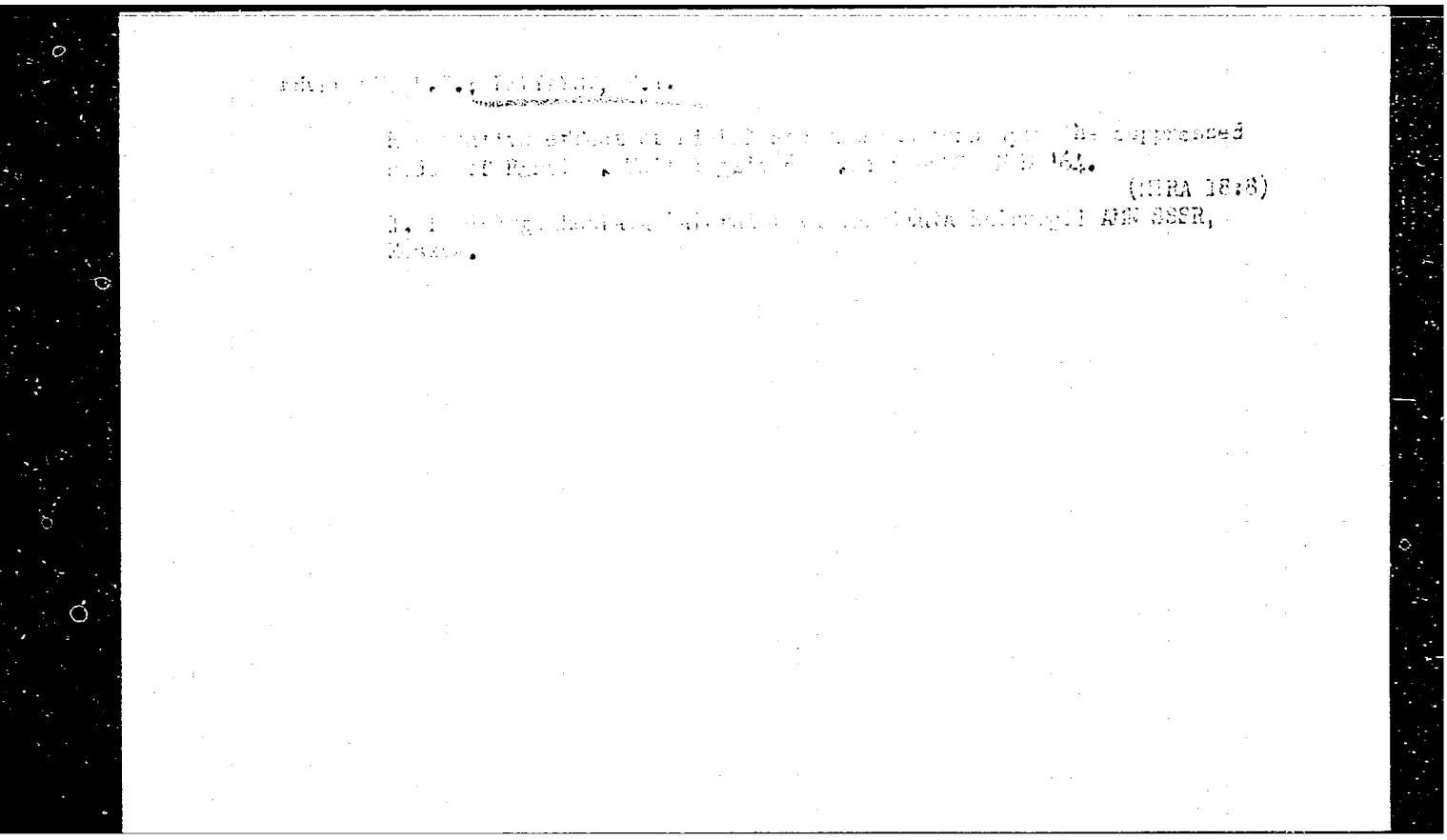
BELYAYEV, V.I.; OVCHINNIKOV, M., red.

[Public health in Yaroslavl in the past and in the present] Zdravookhranenie IAroslavlia v proshlom i nastoiashchem. IAroslavl', IAroslavskii med. in-t, 1961. 135 p. (MIRA 17:4)

BELYAYEV, V.I.

Change of electric activity in a single Ranvier's node of an isolated nerve fiber under the influence of novocaine. Biul. eksp. biol. i med. 56 no.8:24-28 Ag '63. (MIRA 17:7)

1. Iz fiziologicheskoy laboratorii (zav. - prof. L.L. Shik) Instituta khirurgii imeni A.V. Vishnevskogo (direktor - deystvitel'nyy chlen AMN SSSR prof. A.A. Vishnevskiy) AMN SSSR, Moskva. Predstavleno deystvitel'nym chlenom AMN SSSR A.A. Vishnevskim.



(MIRA 16:8)

KHOKHOLOV, B.I.; BELYAYEV, V.I.

Study of the mechanism of novocaine effect on the electrical activity of a single Ranvier's node. Biofizika 10 no.4: 625-633 '65. (MIRA 18:8)

1. Institut khirurgii im. A.V. Vishnevskogo AMN SSSR, Moskva.

MAKSIMENKOV, Aleksey Nikolayevich, prof.; BELYAYEV, V.I., kand. med. nauk; VINOGRADOVA, V.G., [redacted] ZAYTSEV, Ye.I., dots.; ZOLOTAREVA, T.V., prof.; MIKHAYLOV, A.G.; MIKHAYLOV, S.S., prof.; YELISEYEV, V.A., red.; KHARASH, G.A., tekhn. red.

[Internal structure of the stems of peripheral nerves] Vnutristvol'noe stroenie perifericheskikh nervov. Leningrad, Medgiz, 1963. 374 p. (MIRA 16:9)

1. Chlen-korrespondent AMN SSSR (for Maksimenkov).
(NERVES, PERIPHERAL)

MNATSAKANOV, I.I.; BELYAYEV, V.I.

Fibromatosis of the omentum and mesentery of the small and large intestines. Vest.khir. 77 no.4:108-110 Ap '56. (MLRA 9:8)

1. Iz khirurgicheskogo otdeleniya (nach. I.I.Mnatsakanov) Simferopol'skogo kruzhnogo voyennogo gospitalya. Simferopol', ul. Gor'kogo 18.

(FIBROMA
mesentery & omentum of small intestine & colon)
(MESENTERIES. neoplasms
fibroma)
(OMENTUM, neoplasms
same)

BELYAYEV, V.I. (Kolomna)

Identity transformations of irrational expressions in a course for the eighth class. Mat. v shkole no.2:69-75 Mr-Ap '55. (Transformations (Mathematics)) (MLRA 8:6)

307/44 - 58 - 4- 2659

Translation from: Referativnyy zhurnal, Matematika, 1958, Nr 4, p 9 (USSR)

AUTHOR: Belyayev, V.I.

TITLE: On the Nature of Exercises in Identical Transformations (O kharaktere upraznnenly v tozhdestvennykh preobrazovaniyakh)

PERIODICAL: Uch. zap. Kolomensk. ped. in-ta, 1956, Nr 1, pp 35 - 52

ABSTRACT: The problems of the place and the role of identity transformations in a secondary school algebra course and the selection of exercises are studied. It is shown that exercises often are abstract and monotonous and that they must be diversified and made more concrete by means of problem solving. Concrete examples of exercises on identity transformations are cited, including those of a practical nature.

Ye. V. Vandysheva

Card 1/1

BEZSONOV, P.A. (Moskva); BELYAYEV, V.I. (Kolomna); BUDANTSEV, P.A. (Orenburg); KARANOV, G.I. (Melekess); MAYOROV, S.V. (Moskva); MURAVIN, K.S. (Moskva); PRUDEIN, P.G. (Gubakha, Permskoy oblasti); SIKORSKIY, K.P. (Moskva); TARASYUK, V.Ye. (Kiyev); KHABIB, R.A. (Samarkand).

Discussing plans of programs. Mat.v shkole no.1:4-24 Ja-F '60. (MIRA 13:5)

1. Zaveduyushchiy kafedroy vysshey matematiki Moskovskogo instituta khimicheskogo mashinostroyeniya (for Bezsonov).
(Mathematics--Study and teaching)

BELYAYEV, V.I. (Kolomna)

Studying the section "approximate computation" in the arithmetic course of the sixth grade. Mat. v shkole no.4:34-39 Jl-Ag '61.
(MIRA 14:8)
(Approximate computation--Study and teaching)

KHODOROV, B.I.; BELYAYEV, V.I.

Modification of the level of critical depolarization and the action potential of electrotonus in a single Ranvier's node under the condition of the ionic effect of cadmium and nickel. Biofizika 8 no.6:707-714 '63. (MIRA 17:7)

1. Institut khirurgii imeni A.V. Vishnevskogo AMN SSSR, Moskva.

SVESHNIKOVA, A.F., kand. veter. nauk; TARKHANEYEV, P.F., nauchnyy sotrudnik; RAKHVALOV, Ye.M. (Omskaya oblast'); ARTYUKHOV, A.G. (Omskaya oblast'); BELYAYEV, V.I. Omskaya oblast')

Testing trichlorometaphos-3 against warble flies. Veterinariia 42 no.11:49-50 N '65. (MIRA 19:1)

1. Sverdlovskaya nauchno-issledovatel'skaya veterinarnaya stantsiya (for Sveshnikova, Tarkhaneyev).

BELYAYEV, V.I.

SHOSTAKOVSKIY, M.F.; SHIKHIYEV, I.A.; BELYAYEV, V.I.

Investigation in the field of derivatives of tertiary unsaturated alcohols. Report no.3. Synthesis of dimethylacetylenyl(vinyl)- - and methylethylacetylenyl(vinyl)-tert-butyl acetals. Izv. AN SSSR Otd.khim. nauk no.5:945-948 S-O '54. (MLRA 8:3)

1. Institut organicheskoy khimii Akademii nauk SSSR.
(Acetals)

Belyayev, V. I.

SHOSTAKOVSKIY,M.F.; SHIKHIYEV,I.A.; VLASOV,V.M.; BELYAYEV,V.I.

Synthesis of vinylisopropyl, vinyldibutyl and vinyldiamyl ethers and their conversions. Dokl. AN Azerb. SSR 10 no.7:473-482 '54. (MLRA 8:10)

1. Predstavleno deystvitel'nym chlenom Akademii nauk Azerbaydzhanskoy SSR Yu.G.Mamedaliyevym.
(Vinyl polymers)

SHOSTAKOVSKIY, M.F.; SHIKHIYEV, I.A.; [redacted]ELYAYEV, V.I.

Investigation in the field of synthesis of derived tertiary unsaturated alcohols. Dokl.AN Azerb.SSR 10 no.11:759-765 '54. (MLRA 8:10)

1. Predstavleno deystvitel'nym chlenom Akademii nauk Azerbaydzhanskoy SSR Yu.G.Mamedaliyevym.
(Alcohols)

BELYAYEV, V. I.

Oxygen-containing organosilicon compounds. III. Preparation of trimethyl- and triethylsilanols and their transformations. M. F. Shostakovskii, I. A. Shikhiev, D. A. Kochkin, and V. I. Belyaev (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Zhur. Obshchei Khim.* 24, 2202-8(1954); cf. *C.A.* 49, 1541*h*, 7610*f*.—Into 109 g. Me_3SiCl in dry Et_2O was passed dry NH_3 9 hrs. at 0-7°, the pptd. NH_4Cl was sepd. and the soln. distd., yielding 64.2% $NH(SiMe_3)_2$, b_{760} 125.5-6°, d_{20} 0.7764, n_D^{20} 1.4090. This (70 g.) was mixed with 200 ml. H_2O, 250 ml. Et_2O, and 10 drops methyl orange indicator soln., and treated with cooling to 0-7° with 250 ml. *N* HCl over 2.5 hrs. when the reaction was complete; distn. of the org. layer gave 88.8% Me_3SiOH, b_{760} 98-8.6°, d_{20} 0.8130, n_D^{20} 1.3892. This (22.5 g.), 21 g. $EtOCH:CH_2$, and 0.005 g. HCl were heated in sealed ampul 8 hrs. at 65°, yielding 15.3% $MeCH(OEt)OSiMe_3$, b_{15-17} 38-9°, n_D^{20} 1.3940, d_{20} 0.8340, as well as 18.4 g. $O(SiMe_3)_2$, b. 99-100°, and 5.4 g. $MeCH(OEt)_2$. Refluxing 151 g. Et_3SiCl with 102.1 g. dry Ac_2O 5-6 hrs. with distn. of AcCl, followed by slow addn. of the residue under the surface of 500 ml. H_2O and 20 ml. 18% NH_4OH below 6°, gave a top layer of Et_3SiOH, 75%, b_{20} 80°, b_{760} 153.5-4.5°, n_D^{20} 1.4341, d_{20} 0.8646; the same was formed in 91% yield when 100 g. Et_3SiCl in 500 ml. dry Et_2O and a few drops of phenolphthalein indicator were treated at −5 to +2° with *N* NaOH until a stable pink color formed; distn. of the org. layer gave the final product. Et_3SiOH has a camphor odor, is sparingly sol. in H_2O, can be stored in a well stoppered flask for long periods; on heating with mineral acids it is transformed to $O(SiEt_3)_2$; it does not react with alkalies, but does react with Na and K on heating. Heating 33 g. Et_3SiOH and 21.5 g. $PrOCH:CH_2$ with 0.02 ml. HCl in ampul 10 hrs. at 65° gave 67.45% $MeCH(OPr)OSiEt_3$, b_{10-11} 89-90°, b_{760} 204-5°, n_D^{20} 1.4250, d_{20} 0.8572.

G. M. Kosolapoff

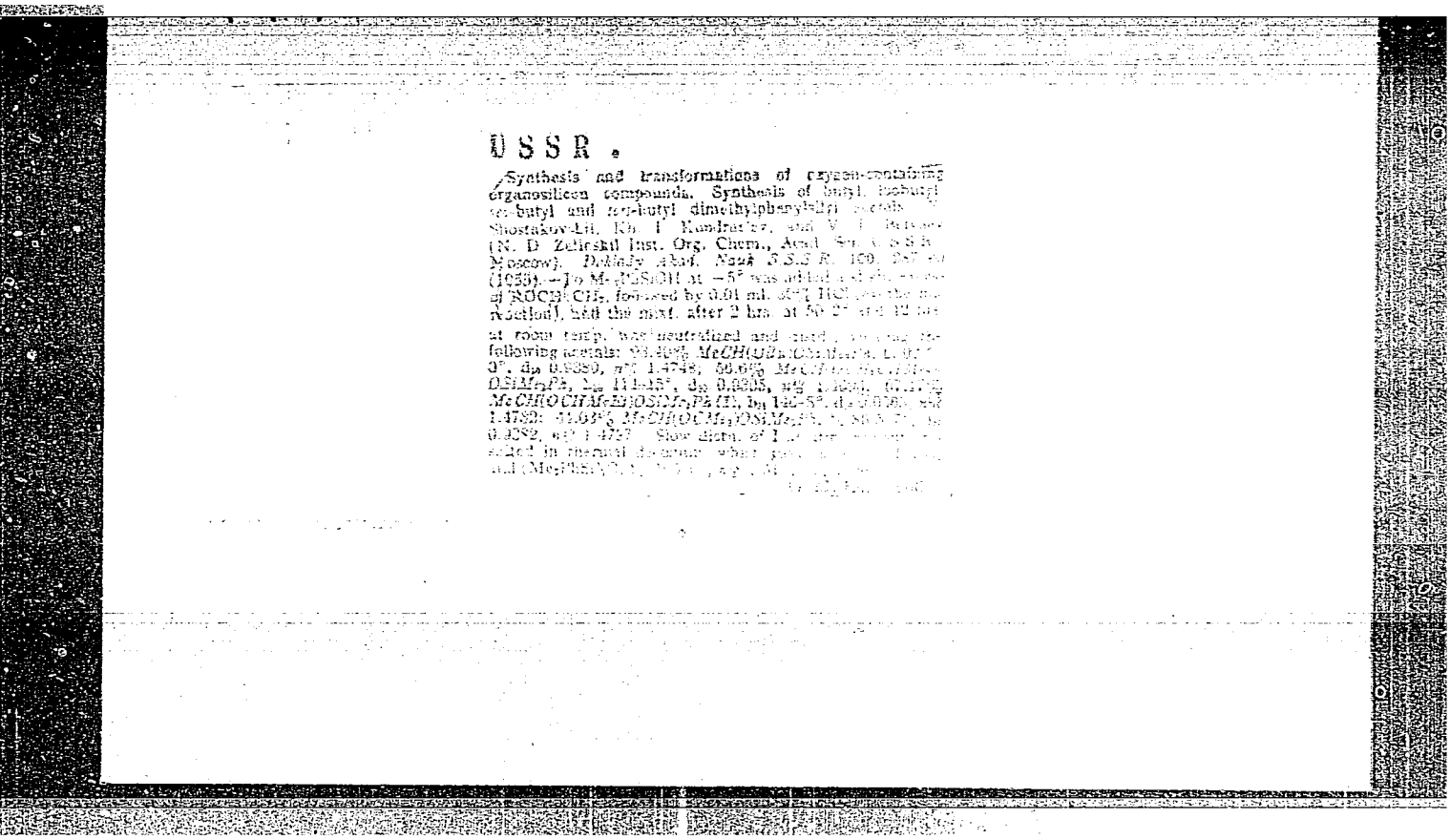
(3)

Chemical structure of acetals. M. F. Shostakovskii, M. I. Batuev, V. I. Belyaev, and A. D. Matveeva (Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 94, 281–4(1954).—In view of the known reactions of acetals (elimination of phenols on heating of aromatic-aliphatic acetals, disproportionation on heating of aliphatic acetals, alcoholytic reactions of aliphatic acetals) it was felt that their structures might involve tautomerism with structures like CH_2:CHOR...HOR. The following acetals were prepd. for a test of this hypothesis; the syntheses were run by the reaction of CH_2:CHOPh with Me_2-COH or of guaiacol with CH_2:$CHOCMe_3$ in the presence of a trace of HCl: *MeCH(OCMe$_3$)OPh*, b_5 83–4°, d_{20} 0.9503, n_D^{20} 1.4890; *MeCH(OCMe$_3$)OC$_6$H$_4$OMe-o*, b_4 111–12°, d_{20} 1.0132, n_D^{20} 1.4930. The intermediate *CH$_2$:CHOCMe$_3$*, b. 75–5.2°, d_{20} 0.7053, n_D^{20} 1.3941. Raman spectra of the above acetals show many lines which exceed the sum of the lines caused by the phenol component as such and Me_3COH as such; in all instances the frequencies of these components are always present. This is believed to support the tautomerism suggested above. The double-bond line of CH_2:-CHOCMe$_3$ at 1637 cm.$^{-1}$ is weaker in the acetal than in the vinyl ether, as might be expected from the concept of tautomerism.

G. M. Kosolapoff

Chemical and physical properties of the hydroxyl group in trimethylsilanol. M. I. Batuev, M. F. Shostakovskii, V. I. Belyaev, A. D. Matveeva, and E. V. Dubrova (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. USSR, Moscow). *Doklady Akad. Nauk S.S.S.R.* 95, 531–4 (1954). — Me_3SiOH, m. −4.5°, b_{744} 98–8.2°, n_D^{20} 1.3892, n_D^{α} 1.3871, d_4^{20} 0.8146, d_4^{α} 0.8085, maintains its H-bond formation ability in soln., as shown by cryoscopic detns.; in C_6H_6 it forms assocd. complexes with a rapid rise of apparent mol. wt. with the concn. (shown graphically) to over that of a dimeric structure. Hence in the pure liquid more complex structures can be postulated. In the liquid state the Raman spectrum is given. Me_3COH also shows a wide HO band caused by H bonding. However, the fine structure in the Si deriv. indicates a greater acidic nature of the HO in the Si deriv. than in the C analog. Me_3SiOH reacts more vigorously with Na and K at 0–3° than does the carbinol. Me_3SiOH also forms a ppt. of Me_3SiONa with concd. NaOH. With traces of acid catalyst Me_3SiOH adds to vinyl ethers, forming acetals (cf. Shostakovskii, *et al.*, *C.A.* 49, 1542b). However, Me_3SiOH also displays basic properties of the HO group, particularly shown by the Raman lines 3652 and 3792 cm.$^{-1}$; in CCl_4 the characteristic HO band vanishes and only the 3792 line remains; this must be due to the vibration of the unassocd. HO group. It is shifted in respect to that of C analog because of the electronegativity difference of Si.

G. M. K.



USSR

Synthesis and transformations of oxygen-containing organosilicon compounds. Synthesis of butyl, isobutyl, sec-butyl and tert-butyl dimethylphenylsilyl [illegible]

Shostakovskii, Kh. I. Kondrat'ev, and V. [illegible]

(N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 100, [illegible] (1955). — To $Me_2PhSiOH$ at −5° was added [illegible] of $ROCH_2Cl$, followed by 0.01 ml. 36% HCl [illegible] Acetone], held the mixt. after 2 hrs. at 50-2° and 12 hrs. at room temp., was neutralized and [illegible] the following acetals: 93.4% $MeCH(OR)OSiMe_2Ph$, b. 107° 3°, d_{20} 0.9350, n_D^{20} 1.4748; 88.6% $MeCH(OR)OSiMe_2Ph$, b_{10} 111-15°, d_{20} 0.9305, n_D^{20} 1.4801; 67.1% $MeCHOCH_2CH_2OSiMe_2Ph$ (II), b_{10} 140-5°, d_{20} 0.9361, n_D^{20} 1.4782; 91.6% $Me_2CH(OCH_2)OSiMe_2Ph$, b_{10} 80-5°, d_{20} 0.9282, n_D^{20} 1.4757. Slow distn. of I [illegible] added in normal manner what [illegible] and $(Me_2PhSi)_2O$, [illegible]

SHOSTAKOVSKIY, M.F.; SHIKHIYEV, I.A.; BELYAYEV, V.I.

Research in the field of oxygen containing organosilicom compounds. Part 5. Preparation of organosilicon acetals. Zhur.ob.khim. 26 no.3:706-709 Mr '56. (MLRA 9:8)

1. Institut organicheskoy khimii Akademii nauk SSSR.
(Silicon organic compounds) (Acetals)

AUTHORS: Shostakovskiy, M. F.; Khomutov, A. M.; Belyayev, V. I. 62-1-10/21

TITLE: Investigation of Chemical Conversions of Unsaturated and High Molecular Compounds. Part 7. Copolymerization of Vinyltertiarybutyl Ether and Methyl Ether of Methacrylic Acid

of a certain polymerization chain, which according to experiments has a much higher activity. Vinyltertiarybutyl ether, when heated with benzoyl peroxide, did not form any polymers and remained unchanged. The same result was obtained during heating with dinitrile asoisobutyric acid.

It was established that the vinyltertiarybutyl ether content in the copolymer with methylmethacrylate increases with the increase of its concentration in the initial monomer mixture.

Tables, graph. There are 7 Slavic references.

ASSOCIATION: Academy of Sciences of the USSR, Institute of Organic Chemistry imeni N. D. Zelinskiy

PRESENTED BY:

SUBMITTED: December 30, 1955

AVAILABLE: Library of Congress

POPOVA, N.I.; BELYAYEV, V.I.; STUKOVA, R.N.

Studying catalytic oxidation of propylene. Izv.vost.fil.AN SSSR no.7:40-50 '57. (MIRA 10:10)

1. Ural'skiy filial AN SSSR.
(Propene) (Acrolein) (Copper oxides)

5.1190
~~5(3)~~

AUTHORS: Popova, N.I., Belyayev, V.I., Vermel', Ye.Ye.

S/153/59/002/06/021/029
B115/B000

TITLE: On the Changed Composition of Phases of a Copper Oxide Catalyst During the Oxidation of Propylene to Acroleine

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1959, Vol 2, Nr 6, pp 926-929 (USSR)

ABSTRACT: A brief survey of relevant publications is given by the authors, and S.Z.Roginskiy and others (Ref 5), O.V.Isayev, M.Ya. Kushnerov and L.Ya.Margolis (Ref 7) are mentioned in this connection. In this paper, the relation between the change of phase composition of the catalyst and its activity has been investigated, and a number of catalysts have been analyzed (after oxidation of the propylene at 368 to 370° for one hour) according to Tananayev (Ref 8). The activity of the catalyst was related to the yield of carbonyl compounds in unit of time (related to oxygen). Results are given in table 1. They show that the change of the chemical composition of the catalyst depends chiefly on the CuO concentration in the carrier. With a CuO content of 1.5% in the carrier, the catalyst changes to

Card 1/3

assume the composition of a mixture of Cu_2O (about 70%) and CuO (about 30%) a short time after the passage of the propylene-oxygen mixture. With catalysts having a higher (3 to 5%) content of CuO, the composition of the catalyst after the reaction is CuO + Cu_2O + Cu. The yield of carbonyl compounds is considerably reduced by the appearance of metallic copper in the catalyst. The introduction of Ag or Al_2O_3 into the catalyst has an analogous effect. Analogous results were obtained, when silicon carbide was used as carrier (Table 2), with the degree of inactivation depending, however, on the oxygen content in the gas mixture, too. An additional reason for the inactivation of the catalysts is the sintering process of CuO which loses thereby its capacity to reduce itself to Cu_2O. This was established to occur with copper oxide catalysts annealed at different temperatures (see Table 3). Catalysts annealed at higher temperatures are less active, as is evident from the results. A further reason for the inactivation of the catalysts is the polymerization of acroleine on

On the Changed Composition of Phases of a Copper Oxide Catalyst During the Oxidation of Propylene to Acroleine

S/153/59/002/06/021/029
B115/B000

their surfaces. The activity of the catalyst may be recovered in a simple way by passage of a mixture with an elevated oxygen content. It was also shown (Figure) that CuO had a stabilizing effect on the activity of the copper catalyst during the oxidation of propylene to acroleine. There are 1 figure, 3 tables, and 8 references, 6 of which are Soviet. 4

ASSOCIATION: Vostochno-sibirskiy filial SO AN SSSR (East Siberian Branch of the Siberian Department of the AS USSR)

Card 3/3

BELYAYEV, Vasiliy Ivanovich; NEKHAY, V.T., red.; DUBOVIK, A.P., tekhn. red.

[Investigation of the metal fatigue process]Issledovanie protsessa ustalosti metallov. Minsk, Izd-vo M-va vysshego, srednego spetsial'nogo i professional'nogo obrazovaniia BSSR, 1962. 109 p. (MIRA 15:8)

(Metals—Fatigue)

L 58907-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 RM

ACCESSION NR: AP5017060 UR/0289/65/000/001/0088/0092
547.381:541.64

AUTHOR: Shostakovskiy, M. F.; Belyayev, V. I.; Okladnikova, Z. A.; Vasil'yeva, L. V.; Serebrennikova, E. V.

TITLE: Polymerization of acrolein under the influence of organomagnesium compounds

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya khimicheskikh nauk, no. 1, 1965, 88-92

TOPIC TAGS: acrolein polymer, organomagnesium compound, polymerization catalyst, Grignard reagent

ABSTRACT: The following polymerization catalysts were considered: ethylmagnesium bromide, isopropylmagnesium bromide, butylmagnesium bromide, isobutylmagnesium bromide, and phenylmagnesium bromide. Isobutylmagnesium [illegible] est yield of acrolein polymer (13%), and hence was the only catalyst used in subsequent experiments, which involved the determination of the effect of [illegible] temperature, and duration of the reaction on the polymerization [illegible] obtained were found to contain 35-41% of unsaturated C=C bonds and [illegible] aldehyde groups, which indicates an active participation of these groups in the [illegible] polymers. Infrared spectra showed the presence of bands at 900-1180, 1690-1730, and

Card 1/2

L 58907-65

ACCESSION NR: AP5017060

1640-1680 cm^{-1}, corresponding to ether groups, aldehyde groups, and C=C bonds, respectively. In addition to solid polymers, 5-20% of low-molecular viscous polymers (MW about 200) were formed. X-ray diffraction analysis showed that the solid polymers consisted of a mixture of amorphous and crystalline structures. Orig. art. has: 2 figures and 3 tables.

ASSOCIATION: Irkutskiy institut organicheskoy khimii Sibirskogo otdeleniya AN SSSR (Irkutsk Institute of Organic Chemistry, Siberian Branch, AN SSSR)

SUBMITTED: 18Nov63 ENCL: 00 SUB CODE: OC

NO REF SOV: 006 OTHER: 010

dm

Card 2/2

BELYAYEV, V.I.; ANNENKOVA, V.Z.; IVANOVA, I.I.; KURYAYEVA, G.S.; KURYAYEV, B.S. [deceased]

Polymerization of α-chloroacrolein. Izv. SO AN SSSR no.3 Ser. khim. nauk no.1:144-145 '65. (MIRA 18:8)

1. Irkutskiy institut organicheskoy khimii Sibirskogo otdeleniya AN SSSR.

ACC NR: AP6010203 SOURCE CODE: UR/0201/66/000/001/0062/0065

AUTHORS: Skokov, P. I.; Belyayev, V. I. 4/5 B

ORG: Belorussian Polytechnic Institute (Belorusskiy politekhnicheskiy institut)

TITLE: The problem of raising deformation resistance by increasing the testing rate

SOURCE: AN BSSR. Vestsi. Seryya fizika-tekhnichnykh navuk, no. 1, 1966, 62-65

TOPIC TAGS: tensile strength, deformation rate, ~~statistical theory~~, probability distribution, stress load

ABSTRACT: The behavior of materials under high loading rates is investigated and, in particular, the increase in their tensile strength is evaluated. The most reliable method of investigating this phenomenon is by referring to the statistical theory of stress-strain behavior. A set of density distribution curves is obtained depicting the probability of stresses of second kind in a material at various loading zones and under various loading rates. These include conditions of no-load, tensile loads at two different rates, and critical loading conditions under two different rates. Equations are obtained for each stress curve, and it is shown that the tensile strength does increase under high loading rates if there is an equilibrium distribution in the stress along the material cross section. Orig. art. has: 8 formulas and 1 figure.

SUB CODE: 11/ SUBM DATE: 15Oct65/ ORIG REF: 007

Card 1/1

BELYAYEV, V. I. et al

"Determination of intensity of the radioactive contamination in the ocean."

report presented at the 3rd Intl Conf, Peaceful Uses of Atomic Energy, Geneva, 31 Aug-9 Sep 64.

KHODOROV, B.I.; BELYAYEV, V.I.

Generation of action potentials in single Ranvier's nodes of isolated frog nerve fibers under the influence of nickel and cadmium ions. Biul. eksp. biol. i med. 57 no.4:3-8 Ap '64. (MIRA 18:3)

1. Fiziologicheskaya laboratoriya (zav. - prof. L.L. Shik) Instituta khirurgii imeni Vishnevskogo (dir. - deystvitel'nyy chlen AMN SSSR prof. A.A. Vishnevskiy) AMN SSSR, Moskva. Submitted April 13, 1963.

KHODOROV, B.I.; BELYAYEV, V.I.

Role of the degree of local response increase in the generation of the action potential of a single Ranvier's node in an isolated frog nerve fiber. Biofizika 8 no.4:461-466 '63.

(MIRA 17:10)

1. Institut khirurgii imeni Vishnevskogo AMN SSSR, Moskva.